

What Is Claimed Is:

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1. A method of inspecting an ophthalmic lens having a 360° peripheral edge, comprising the step of directing structured light at the entire 360° peripheral edge of the lens such that the structured light enters the lens at the peripheral edge thereof and internally reflects within the lens, and wherein the internally reflected light diffracts upon encountering a marking on the lens, whereby clear areas of the lens appear dark due to said internal light reflection, and one or more markings on the lens appear bright due to said internally reflected light scattering and exiting the lens at said one or more markings.
  2. The method of claim 1 and further comprising the step of imaging the lens with an imaging device during the inspection.
  3. The method of claim 2 and further comprising the step of comparing the image received by the imaging device with a predetermined set of threshold values and determining whether the lens under inspection has passed or failed inspection.
  4. The method of claim 3 wherein a computer is used in determining whether the lens under inspection has passed or failed inspection.
  5. A method for inspecting an ophthalmic lens having a 360° peripheral edge, said method comprising the steps of:
    - a) providing a light source;
    - b) structuring the light emitted by said light source into a 360° structured light directed at a center;
    - c) positioning an ophthalmic lens at said center such that said structured light is directed at the entire 360° peripheral edge of said lens whereby said
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structured light enters said lens with said lens behaving as a fiber optic conduit such that said structured light internally reflects along clear areas of said lens, and scatters at markings on said lens; and

- d) providing an imaging device directed at said ophthalmic lens, said imaging device receiving bright and dark signals from the ophthalmic lens with the bright signals indicating the position of one or more markings on the lens and dark signals indicating clear areas of the lens.

6. The method according to claim 5 wherein said light source is an LED array.
7. The method according to claim 5 and further comprising the step of diffusing the light prior to said structured light entering the lens.
8. The method according to claim 5 wherein said light source is a fiber optic configured to emit a 360° ring of light.
9. The method according to claim 5 wherein the light is structured by a first, 360° light structuring aperture placed between said light source and said lens.
10. The method of claim 9 wherein said light structuring aperture is formed by spaced, facing surfaces of a first aperture block and a second aperture block.
11. The method of claim 10 wherein said facing surfaces are beveled to define an aperture angle.
12. The method of claim 11 wherein said angle is between about 10° to 50°.
13. The method of claim 10 wherein said facing surfaces are textured.
14. The method of claim 9, wherein said lens inspection includes opposite concave and convex surfaces, and further comprising the step of providing a second, 360° light structuring aperture placed between said light source and said lens, said

second light structuring aperture positioned to direct light at the convex surface of said lens.

15. The method of claim 9 and further comprising the step of providing a third aperture block, and wherein said second, 360° light structuring aperture is formed by spaced, facing surfaces of said second aperture block and said third aperture block, respectively.

16. An assembly for inspecting an ophthalmic lens, said assembly comprising:

- a) a light source;
- b) an annular light structuring aperture having an open center and configured to structure light from said light source and project the structured light radially inwardly to said open center;
- c) a lens holder for removably engaging and positioning said lens in said open center adjacent said light structuring aperture whereby the structured light impinges upon said lens.

17. The assembly of claim 16, and further comprising an imaging device positioned to image said lens upon the structured light impinging upon the lens.

18. The assembly of claim 17, wherein said structured light enters the lens along the entire periphery of the lens and is internally reflected within the lens such that clear areas of the lens appear dark to said imaging device, and wherein the internally reflected light scatters at points of markings on the lens such that areas of the lens having markings appear as bright areas to said imaging device.

19. The assembly of claim 16 wherein said light source is an LED array.

20. The assembly of claim 16 wherein said light source is a fiber optic.

21. The assembly of claim 16 and further comprising a light diffuser positioned between said light source and said light structuring aperture.
22. The assembly of claim 21 wherein said light diffuser is made of plastic.
23. The assembly of claim 21 wherein said diffuser includes surfaces for reflecting the light received from said light source toward said light structuring aperture.
24. The assembly of claim 16, and further comprising first and second aperture blocks having spaced, facing surfaces defining said light structuring aperture.
25. The assembly of claim 24, wherein said facing surfaces are textured.
26. The assembly of claim 24 wherein said spacing between said facing surfaces is continuously adjustable.
27. The assembly of claim 24 wherein said light structuring aperture has an aperture angle between about 10° and 50°.